

Metropolitan State University of Denver Regular Course Syllabus

Fall 2016

CS - 3210 - Principles of Programming Languages

Status	completed
Tracking:	LAS 1617-45
Department	Mathematical and Computer Sciences, Department of
Status:	Active-Visible
Prefix:	CS
Course Number:	3210
Course Type:	Computer Science
Course Title:	Principles of Programming Languages
Transcript Course Title:	Principles of Prog. Languages
Check All That Apply:	Required for Major
Credit Hours:	4
Schedule Type:	Lecture
Grade Mode:	Letter
Lecture:	60
Lab:	
Internship:	
Practicum:	
Other:	
Additional Student Work Hours per course:	120
Variable topics umbrella course:	No
If yes, number of credits/ repeats allowed	
Specified repeatable course:	No
If yes, number of credits/ repeats allowed	
Prerequisite(s):	CS 2050, CS 2400, CS 3250, and MTH 3170, all with a grade of "C" or better, or permission of instructor
Corequisite(s):	
Prerequisite(s) and/or Corequisite(s):	
Banner Prerequisite(s):	
Banner Corequisite(s):	
Banner Prerequisite(s) and/or Corequisite(s):	
Level	Undergraduate
Class	
Program/Major	
Student attribute	
Catalog Course Description:	This course traces the evolution of programming languages and identifies and analyzes the contributions made by several significant languages and their successors. Specific issues of programming language implementation such as creation of activation records for block structured languages and static and dynamic scoping as methods for defining program object visibility are studied in

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	depth. All four of the modern programming language paradigms (procedural, functional, object-oriented, and logical) are studied.		
Required Reading and Other Materials will be equivalent to:	Sebesta, Robert W. (2013). Concepts of Programming Languages. 10th edition. Boston, MA: Addison-Wesley. ISBN-13: 9780131395312		
Specific, Measurable Student Behavioral Learning Objectives:	<p>Upon completion of this course the student should be able to:</p> <ol style="list-style-type: none"> 1. Discuss trade-offs in the design of historical imperative languages. 2. Trace the execution of programs in languages using various schemes for visibility of variables. 3. Create a finite state machine for a given regular grammar. 4. Implement a recursive descent parser for a given context free grammar. 5. Demonstrate techniques for implementing recursive subroutine calls. 6. Demonstrate techniques for implementing various data constructs. 7. Translate control structures to low-level constructs. 8. Create programs in a functional language for problems that exemplify the strengths of a functional language. 9. Create programs in a declarative language for problems that exemplify the strengths of declarative languages 		
Detailed Outline of Course Content (Major Topics and Subtopics) or Outline of Field Experience/ Internship	<ol style="list-style-type: none"> I. Programming Language History <ol style="list-style-type: none"> A. Early Machines and Machine Language B. Moving From machine-Oriented Languages To Human-Oriented Languages Assembly, FORTRAN, Block-structured (Algol, PL/I), Early Data Abstraction (Simula, Modula2, Ada,...), Object-oriented (Smalltalk, Java, ...) C. Programming Language Paradigms Procedural, Object-Oriented, Functional, Logical D. Special-Purpose Languages (string processing, simulation,...) E. Implementation Methods Preprocessors, Compilers, Interpreters, Linking, Loading 		
Evaluation of Student Performance	<p>A combination of the following:</p> <ol style="list-style-type: none"> 1. Homework and Programming Assignments 2. Quizzes and Examinations 3. Final Examination 4. Research Papers and/or Book Reports 5. Oral Presentations 6. Significant Programming Projects <p>Written communication skills will be applied in this course.</p>		
Learning Objectives			
Distribution of Credit Hours	(4 + 0)		
Steps	Edits	Decision	Date
Originator			
Gerald Shultz	2	approve	10/03/2016 04:28PM
Department Curriculum Committee Chair			
Clark Dollard	0	approve	10/05/2016 03:17PM
Department Chair			

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Lindsay Packer	1	approve	10/06/2016 11:03AM	
Dean's Office Tracking Assignment				
Kelsey Smith	1	approve	10/06/2016 02:52PM	
Substantive College Level				
Gerald Shultz	5	approve	12/09/2016 09:35AM	
Linda Lang-Peralta	0	approve	12/15/2016 04:52PM	
Mona Mocanasu	1	approve	12/14/2016 10:40AM	
Faculty Senate President				
Matthew Makley	0	None		
Erica Buckland	0	force-approve	12/22/2016 09:28AM	
AVP Academic and Student Affairs				
Bernice Harris	1	approve	12/22/2016 10:01AM	